REMARKS

Claims 1 through 39 are pending in this application. Claims 1, 6, and 7 are amended herein. Support for the amendments to claims 1, 6, and 7 may be found in the claims as filed originally, as well as at paragraphs **[0014]** and **[0016]** of the specification. The amendments to the claims are made merely for purposes of clarification only, and not for any reason of patentability. The amendment is believed to place the application in better condition for allowance, and entry thereof is earnestly solicited. Further reconsideration is requested based on the foregoing amendment and the following remarks.

Response to Arguments:

The Applicants acknowledge with appreciation the consideration of their arguments. It is submitted, however, that the final Office action mis-characterizes McKee by asserting that "McKee clearly discloses a control system for eliminating condensate either in the EGR cooler or in the intake manifold," at page 4. To the contrary, McKee only seeks to *reduce* or *control* formation of EGR condensate in the EGR cooler or in the intake manifold, as described at column 1, lines 8 and 9, not eliminate it.

McKee, in fact, suggests installing a condensation trap downstream of the EGR cooler to collect the EGR condensate that forms, as described at column 1, lines 8, 9, 25 through 29, 37, 38, 48, and 49 and shown in Fig. 2, rather than eliminating it in either the EGR cooler or the intake manifold. Furthermore, McKee seeks only to reduce or eliminate the *effects* of EGR condensate on various engine components, i.e. by trapping it as described at column 7, lines 19 and 20, rather than eliminating the condensate *itself*. It is submitted that McKee would have no use for a condensation trap downstream of the EGR cooler if condensate was actually being eliminated in the EGR cooler or in the intake manifold, as asserted in the final Office action.

The final Office action asserts further at page 4 that "(i)n order to prevent condensate from forming, the temperature of the gases must remain above the dew-point temperature." While it may be true that one way for McKee to keep condensate from forming would be to maintain the temperature of the gases above the dew-point temperature, McKee is not *trying* to keep condensate from forming, as discussed above. McKee, rather, will be satisfied if condensate formation in the EGR cooler or in the intake manifold is merely being controlled or

reduced, as discussed above. Then, if the amount of condensate that remains is intolerable, McKee installs a trap to trap it downstream of the EGR cooler, rather than eliminating it in the first place.

Furthermore, the assertion that the temperature of the gases must remain above the dew-point temperature is not supported by McKee at all. McKee is indifferent to the gas temperature, actually. McKee, rather, is of the opinion that "the parameter that most influences fouling is the velocity of the airstream," as described at column 5, lines 61 and 62, not the gas temperature.

Gas stream temperature (T_G), in fact, which is the temperature that would have to be maintained above the dew point temperature if condensate were to be eliminated, appears in the fouling equation at column 5, line 56, along with gas velocity (V). McKee, however, denigrates the effect of T_G on fouling, as described at column 5, lines 61 and 62, saying that the most important parameter is velocity, not gas stream temperature. Since McKee is indifferent to the gas stream temperature, there is no reason to believe that McKee, or anyone who read McKee at the time of the invention, would have bothered to maintain the gas stream temperature above the dew point temperature.

McKee, finally, "uses a two-pass cooler with cross-sectional area sized to reduce fouling by increasing velocity of the EGR flow, as described at column 5, lines 62, 63, and 64. McKee, therefore, seeks to control or reduce fouling, i.e. condensate formation that is acidic in nature, as described at column 1, lines 52 and 54, by raising the velocity of EGR flow, rather than maintaining a gas temperature above the dew point temperature. For these reasons and others developed more fully below, the Applicants request that their arguments be considered again.

Claim Rejections - 35 U.S.C. § 102:

Claims 1 through 7, 9 through 14, 21, 22, 23, 25, and 26 were rejected under 35 U.S.C. § 102(b) as anticipated by McKee, US 6,367,256. The rejection is traversed, to the extent it might apply to the claims as amended.

Claim 1 recites:

"said bypass valve controller maintaining an intake manifold temperature above the dew-point temperature."

McKee neither teaches, discloses, nor suggests controlling a bypass valve controller

maintaining an intake manifold temperature above the *dew-point* temperature, as recited in claim 1. McKee, rather, is concerned with fouling of EGR components, as described at column 7, lines 13 and 14, not preventing condensation in the intake manifold. Furthermore, McKee is indifferent to gas stream temperature, preferring to prevent fouling by raising gas stream *velocity*, as described at column 5, lines 54-64. To wit:

> "Fouling is a function of the following parameters according to:
>
> $$1.094 * D * V^{-1}14 ((T_G - T_S)/T_S))^{0.7}$$
>
> where D represents particle density in g/m^3, V represents velocity in m/s, T_G represents gas stream temperature, and T_S represents the surface temperature. As the above equation illustrates, the parameter that most influences fouling is the velocity of the airstream. As such, the present invention uses a two-pass cooler with cross-sectional area sized to reduce fouling by increasing velocity of the EGR flow."

This is to be contrasted with claim 1, in which a bypass valve controller maintains an intake manifold temperature above the dew-point temperature.

Furthermore, the passage at column 6, lines 4 through 10 of McKee noted at page 2 of the final Office action describes ECM 128 operating valve 151 to control the *EGR temperature* based on current ambient and operating conditions, not the manifold temperature. This is to be contrasted with claim 1, in which a bypass valve controller maintains an intake manifold temperature above the dew-point temperature.

In addition, the passage at column 7, line 12 of McKee noted at page 2 of the final Office action only describes using a CAC bypass valve, either alone or in combination with the EGR cooler bypass and/or condensation trap(s) and heater, "under conditions which may promote condensation within the intake manifold based on current engine operating and ambient conditions," as described at column 6, lines 64 through 67, continuing at column 7, line 1, rather than preventing condensate from forming in the intake manifold, contrary to the assertion in the final Office action.

McKee, in fact, describes the present invention as providing an EGR strategy which utilizes increased EGR *mass flow* to reduce fouling of EGR components, at column 7, lines 12, 13, and 14, rather than maintaining an intake manifold temperature above the dew-point temperature. This is to be contrasted with claim 1, in which a

bypass valve controller maintains an intake manifold temperature above the dew-point temperature. Claim 1 is submitted to be allowable. Withdrawal of the rejection of claim 1 is earnestly solicited.

Claims 2 through 5 depend from claim 1 and add further distinguishing elements. Claims 2 through 5 are thus also submitted to be allowable. Withdrawal of the rejection of claims 2 through 5 is also earnestly solicited.

Claim 6 recites:

"maintaining an intake manifold temperature above the dew-point temperature."

McKee neither teaches, discloses, nor suggests maintaining an intake manifold temperature above a *dew-point* temperature, as discussed above with respect to claim 1. Claim 6 is submitted to be allowable for at least the reasons expressed above with respect to claim 1. Withdrawal of the rejection of claim 6 is earnestly solicited.

Claims 7 and 9 through 12 depend from claim 6 and add further distinguishing elements. Claims 7 and 9 through 12 are thus also submitted to be allowable. Withdrawal of the rejection of claims 7 and 9 through 12 is also earnestly solicited.

Claim 13 recites:

"a bypass system that mixes higher temperature bypassed air with air from the charge air cooler to create a mixed boost-air temperature that is just above the dew-point temperature so as to inhibit condensation and the formation of acids."

McKee neither teaches, discloses, nor suggests maintaining an intake manifold temperature above a *dew-point* temperature, as discussed above with respect to claim 1. Since McKee neither teaches, discloses, nor suggests maintaining an intake manifold temperature above a dew-point temperature, McKee cannot teach, disclose, or suggest creating a mixed boost-air temperature that is just above the dew-point temperature, either. Claim 13 is submitted to be allowable for at least the reasons expressed above with respect to claim 1. Withdrawal of the rejection of claim 13 is earnestly solicited.

Claims 14, 21, 22, 23, 25, and 26 depend from claim 13 and add further distinguishing elements. Claims 14, 21, 22, 23, 25, and 26 are thus also submitted to be allowable. Withdrawal of the rejection of claims 14, 21, 22, 23, 25, and 26 is also earnestly solicited.

Claim Rejections - 35 U.S.C. § 103:

Claims 8, 15, 16, 17, 24, 27, 28, and 29 were rejected under 35 U.S.C. § 103 as being unpatentable over McKee. The rejection is traversed. Reconsideration is earnestly solicited.

Claims 8, 15, 16, 17, 24, 27, 28, and 29 depend from claims 6 or 13 and add further distinguishing elements. McKee neither teaches, discloses, nor suggests maintaining an intake manifold temperature above a dew-point temperature, as discussed above with respect to claims 1, 6, and 13. Claims 8, 15, 16, 17, 24, 27, 28, and 29 are thus also submitted to be allowable.

Furthermore, the final Office action provides no motivation or suggestion to modify McKee, as required by 35 U.S.C. § 103(a) and the M.P.E.P. §706.02(j)(D), beyond an assertion that such modifications are obvious design choices or art-recognized equivalents. It is submitted, rather, that persons of ordinary skill in the art who read McKee for all it contained at the time the invention was made would not have seen fit to modify McKee in the manner proposed in the final Office action. In particular, persons of ordinary skill in the art would not have modified McKee by providing a bypass valve temperature controller to maintain a selective temperature setting for the intake manifold as long as it is high enough to prevent condensation, contrary to the assertion in the final Office action, because McKee doesn't believe gas stream temperature is a significant factor in condensation, as discussed above. McKee, rather, believes that gas stream velocity has the most influence on fouling, as described at column 5, lines 61 and 62, not gas stream temperature. Withdrawal of the rejection of claims 8, 15, 16, 17, 24, 27, 28, and 29 is earnestly solicited.

Allowable Subject Matter:

The Applicants appreciate the indication that claims 18, 19, 20, and 30 through 39 contain allowable subject matter.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all claims 1 through 39 are allowable over the cited references. Allowance of all claims 1 through 39 and of this entire application are therefore respectfully requested.

Respectfully submitted,

By _____

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